
FIRE GL™ X1 FIRE GL™ Z1

User's Guide

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Documentation updates

ATI is constantly improving its product and associated documentation. To maximize the value of your ATI product, you should ensure that you have the latest documentation. ATI's documentation contains helpful installation/configuration tips and other valuable feature information.

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HYDRAVISION™ User's Guide

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CHAPTER 1

Getting Started

The FIRE GL™ card is an advanced workstation 3D and 2D graphics accelerator. The card delivers top performance to leading DCC and CAD software applications in generating 3D animation, real-life visual effects, and design work in real-time.

- Real-time photo-realistic rendering and animation
- Stable and reliable software support for Windows® and Linux® platforms.
- Optimized for leading CAD and DCC software applications
- SMARTSHADER™ 2.0 technology for creating complex visual effects
- SMOOTHVISION™ 2.0 technology for advanced full-scene anti-aliasing



IN THIS CHAPTER...

- **Using this Guide** on page 2
- **FIRE GL™ Card Features** on page 4
- **System Requirements and Tools** on page 6
- **Quick Installation** on page 7

Using this Guide

For your convenience, this online User's Guide has been formatted as an Adobe® Acrobat® PDF file. This format gives you great flexibility when using this documentation.

Many hyperlinks provide easy access to any information you may want. To make it useful in a printed format, too, a - hyperlinked - table of contents and page numbers are provided.

Because it was designed to be used online and printed, some of the images may not print clearly or appear very clearly on screen.

The organization of this guide is as follows:



Installing the Hardware and Software on page 8 provides instructions for installing your FIRE GL™ card and software and connecting video output devices to your card.



Using Your FIRE GL™ Card on page 25 explains how you can take advantage of the advanced software utilities of your FIRE GL™ card.



Reference on page 36 provides troubleshooting tips and regulatory compliance information for your card.

HYDRAVISION™ User's Guide provides information on using HYDRAVISION™, a multi-monitor and desktop management utility to control multiple display desktops.

Viewing the User's Guide Online

You can easily read the User's Guide online - important hypertext links, such as Table of Contents entries, World Wide Web, and E-mail addresses are active.

Place your mouse cursor over Table of Contents entries or main headings. If the hand icon changes to a pointing index finger, simply click and you will move to that place in the document. Some E-mail or World Wide Web addresses inside this manual may be active as well. Go directly to a Web, FTP site, or E-mail program simply by clicking on an active link. Displaying the provided bookmark and thumbnail views may help you with the orientation and navigation in the User's Guide.

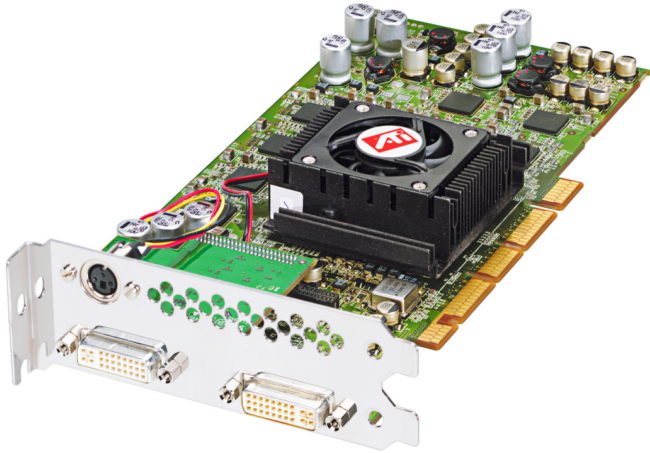
This manual might be displayed with slightly-reduced magnification in your Reader. If you experience any difficulty reading certain files online, use the Reader's **Zoom To** feature from the **View** menu and increase the magnification to about 150%. To view some screenshot images perfectly clear you may need a larger magnification.

Do you Need a Printout of the Online User's Guide?

You can also print this User's Guide to access it off-line. The manual then will look like any standard document with a table of contents and page numbers.

For printing the User's Guide, a print resolution of 600 dpi -or higher - is recommended.

FIRE GL™ Card Features



- Powered by FGL™ 9700 Visual Processing Unit (VPU)
- On-board memory:
FIRE GL™ X1: 256 MB DDR SDRAM
FIRE GL™ Z1: 128 MB DDR SDRAM
unified frame buffer, Z-buffer, texture storage
- 256-bit memory interface for fast 3D graphics
- 8-pixel pipeline architecture provides enhanced rendering power (FIRE GL™ Z1: 4-pixel pipeline architecture)
- 128-bit floating point precision frame buffer for photo-realistic renderings
- Supports AGP 8X standard, providing a two way high-speed interface between the graphics subsystem and the workstation
- Full DirectX® 9.0 support
- DirectX® 9.0 functionality in OpenGL®
- DDC1/2b/2b+ monitor support on all operating system platforms
- Support for two analog or digital monitors
High resolutions up to 2048 x 1536, 32-bit
Independent resolutions and refresh rates for any two connected monitors

- Quad buffer stereo support
- Optimized for leading CAD and DCC software applications: customize and tune applications to meet your specific requirements using the display profile utilities
- Intel Pentium® 4 Streaming SIMD and AMD Athlon 3Dnow!™ support for Windows 2000, Windows XP and Linux operating systems.

Note

For more detailed information on features and performance please refer to the section [Technical Details](#) on page 41.

System Requirements and Tools

Computer system	<ul style="list-style-type: none">• Intel® Pentium® 3, Pentium® 4, Xeon® AMD® Athlon® XP/MP or compatible• 128 MB of system memory 256 MB or more for best performance• Motherboard with free AGP Pro slot Note: The bracket of the FIRE GL™ card also covers the expansion slot next to the AGP Pro slot.• CD-ROM drive
Operating system	<ul style="list-style-type: none">• Windows®2000 with Service Pack 1 (or higher)• Windows®XP• Linux 2.4.x - XFree86 4.1.0, XFree86 4.2.0
Service Pack Information for Windows2000	<p>You must be running Windows 2000, updated with Service Pack 1 (or higher) prior to installing the FIRE GL™ drivers.</p> <p>Service Packs are available from Microsoft's web page, www.microsoft.com.</p>
Tools	<ul style="list-style-type: none">• A screwdriver to remove and reinstall the PC cover screws and card mounting screws. See your PC manual for specific requirements.• FIRE GL™ CD-ROM for your FIRE GL™ card
Monitor	<ul style="list-style-type: none">• High-resolution MultiSync or multi-frequency monitors or other VGA monitors.• Digital flat-panel (DFP) TFT LCD displays and digital CRT displays

Quick Installation

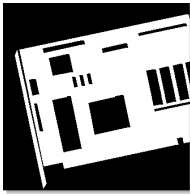
- Brief instructions on how to get to work with the FIRE GL™ card in the shortest possible time.
- Recommended for experienced users and system administrators only.
- For more detailed information on installation and operation of your graphics accelerator, please refer to the corresponding sections of the *FIRE GL™ User's Guide*.

Installation Steps

- 1** Un-install the drivers and software for your old graphics card.
- 2** Disable any on-board graphics solution on the motherboard.
- 3** Shut down and disconnect your computer system.
- 4** Remove the installed (AGP, PCI, or ISA) VGA card.
- 5** Install the new FIRE GL™ card.
- 6** Reassemble and connect your computer system.
- 7** Install the FIRE GL™ drivers and configuration software from the FIRE GL™ CD:
 - automatic **Quick Start** utility or
 - **Start > Run > X:\START EXE**
where X is the drive letter of your CD-ROM drive

CHAPTER 2

Installing the Hardware and Software



IN THIS CHAPTER...

- **Installing the Hardware** on page 8
- **Installing the Software** on page 21

Installing the Hardware

The hardware installation includes the following steps:

- **Preparing your Computer**
- **Installing the Card**
- **Connecting the Cables and Completing the Installation**

Preparing your Computer



Turn off the power to your system and discharge your body's static electric charge by touching a grounded surface—for example, the metal surface of the power supply—before performing any hardware procedure.

The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel. If you do not feel comfortable performing the installation, consult a qualified computer technician.

Damage to system components, the accelerator card, and injury to yourself may result if power is applied during installation.

Information Before you Start

What do you need to use your FIRE GL™ card?

System Requirements and Tools

- Motherboard with free AGP Pro slot:
Note: The bracket of the FIRE GL™ card also covers the expansion slot next to the AGP Pro slot.
- 128 MB of system memory
 256 MB or more for best performance
- System interrupt (IRQ) which is free. This may have to be reserved in the computer's BIOS. For help with this subject, refer to the manual for your mainboard
- Intel® Pentium® 3, Pentium® 4, Xeon®; AMD® Athlon® XP/MP, or compatible
- Supported operating system
 - Windows® 2000 with Service Pack 1 (or higher)
 - Windows® XP
 - Linux 2.4.x - XFree86 4.1.0, XFree86 4.2.0
- A screwdriver to remove and reinstall the PC cover screws and card mounting screws. See your PC manual for specific requirements.
- FIRE GL™ CD-ROM

Plug-n-Play?	<p>The card has been designed to take advantage of 'plug-n-play' without requiring additional hardware installation or configuration.</p>
What type of monitors do you need?	<p>Your FIRE GL™ card is optimally configured to be combined with digital flat-panel (DFP) TFT LCD displays and digital CRT displays.</p> <p><i>Note:</i> Your DFP monitor must have a data cable with digital-only DVI plug (DVI-D) - but not with integrated analog/digital DVI plug (DVI-I). Check with your monitor's documentation.</p> <p>You can also connect the FIRE GL™ card to high-resolution MultiSync or multi-frequency monitors or other VGA monitors.</p> <p><i>Notes:</i> (1) You need a Plug-and-Play monitor that supports VESA's Display Channel specifications (DDC1 or DDC2) to take advantage of the DDC1/DDC2b+ features</p> <p>(2) You can use the full power of the graphics card only if your monitor supports the horizontal (kHz) and vertical (Hz) refresh rates as required by the graphics card. Refer to your monitor's documentation for recommended refresh rates</p>
Where are the drivers?	<ul style="list-style-type: none">• Windows 2000 and Windows XP drivers are provided on the FIRE GL™ CD.• Linux drivers and installation instructions are available for downloading from www.ati.com/support.
Are you planning a multi-monitor system?	<ul style="list-style-type: none">• You may connect two monitors to the FIRE GL™ card.• If DDC support is available, the respective resolution and refresh rate for each monitor is automatically detected.• Multi-monitor and Desktop Management utilities<ul style="list-style-type: none">- HYDRAVISION™- DualScreen

Are you installing your FIRE GL™ card in place of a card from another manufacturer?

Before you install your FIRE GL™ card, we recommend that you first uninstall the driver for your current graphics card.

Do you have an integrated graphics solution on the motherboard?

Please refer to the manual or contact your motherboard manufacturer to determine how to disable your on-board graphics.

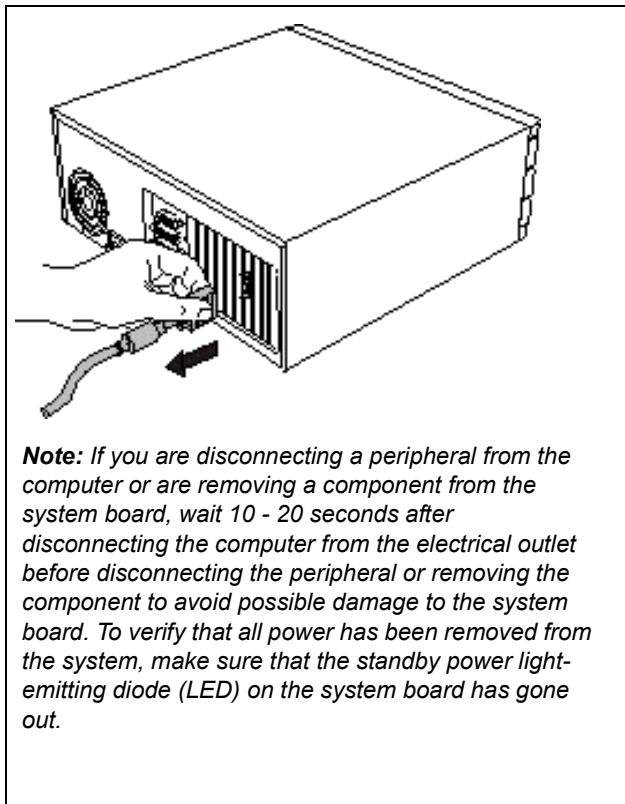
The illustrations do not show your card?

The illustrations provided in this section are for instructional use only; the card shown may look different than the one you purchased.

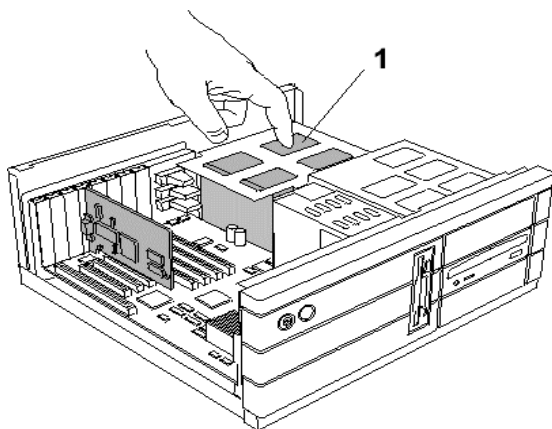
Installing the Card

To install your graphics accelerator card, follow these steps:

- 1 Switch off your computer and all external options (monitor, printer, and others).** Then disconnect all cables from the back of your computer. Unplug all power cables from the electrical source.



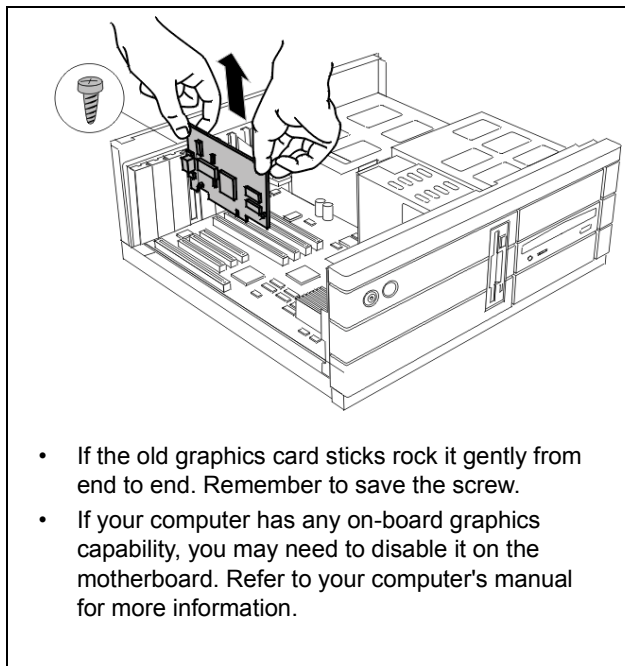
- 2 Remove the computer cover.** If necessary, consult your computer system manual about removing the cover.



1 Power Supply

Remember to discharge your body's static electricity by touching the metal surface of the computer chassis

3 Remove any existing graphics card from your computer.

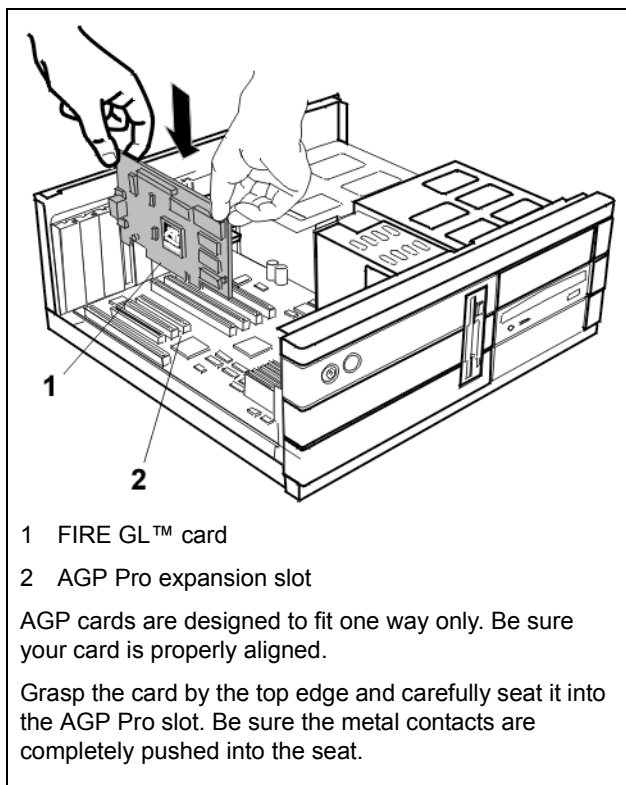


4 Insert the card into the AGP slot.

Note: The FIRE GL™ card fits in either AGP Pro 8x or AGP Pro 4x slots.

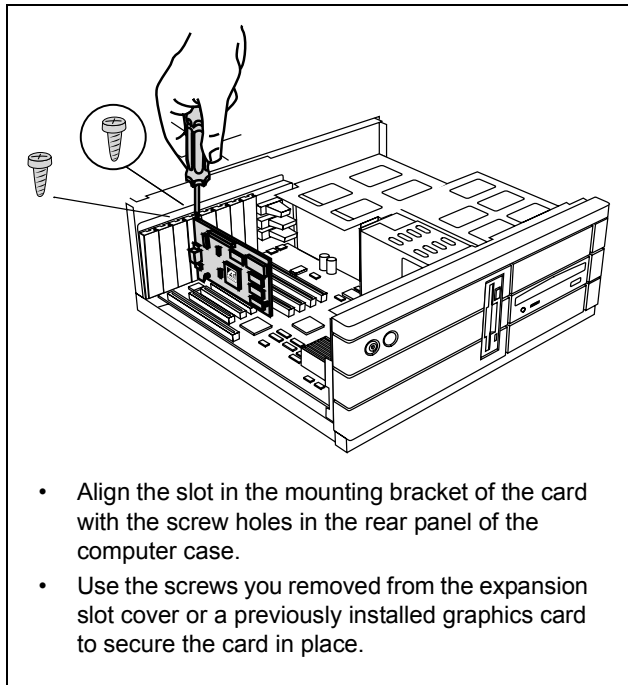
- Locate the AGP Pro slot. Refer to your computer's manual for more information.
- If necessary, remove the metal slot cover from the AGP Pro slot and the adjacent slot. Save the screws to secure the graphics card later.

- Align the FIRE GL™ card with the AGP Pro slot, and press it in firmly until fully seated.



5

Replace the screws to fasten the card in place.



6

Reassemble your computer.

- Secure ribbon cables and gently push them down and out of the way before you replace the system cover.
- Replace the computer cover.
- Reconnect any peripheral equipment cables you may have disconnected.

Connecting the Cables and Completing the Installation

Connecting the Monitor Cables

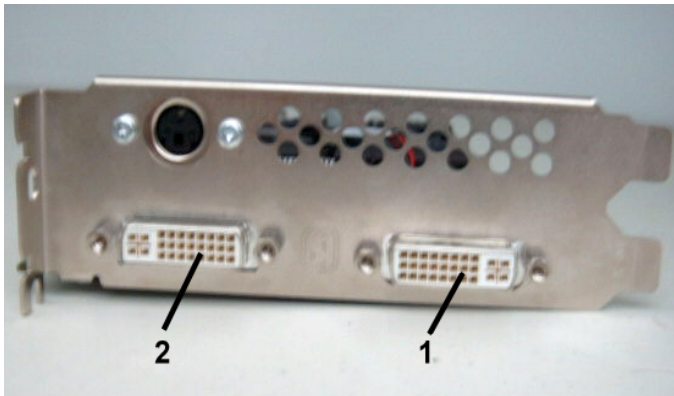
You may connect one or two monitors, either DFP/digital CRT or analog VGA to the FIRE GL™ card. Use the provided DVI-to-VGA adapters to connect monitors with VGA connector.

Note

If you connect only one monitor, make sure to connect it to DVI connector (1) on the card.

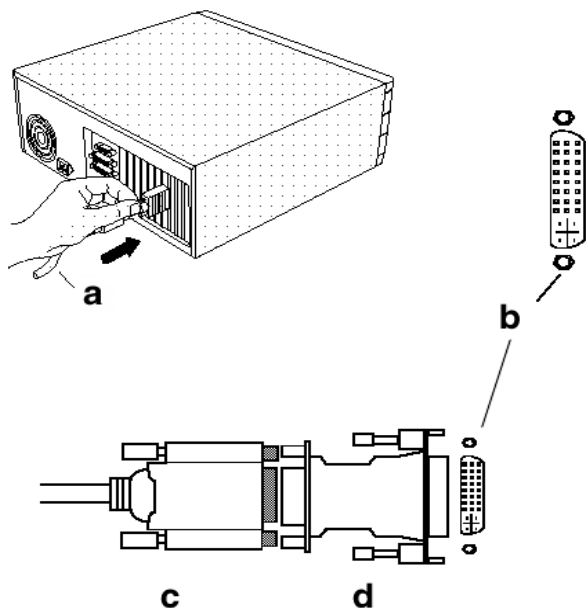
Securely attach the data cable of your first monitor to the DVI output connector (1) on the card. Attach the cable to the monitor according to the monitor's instructions. Please refer to the documentation that came with your monitor if you need additional installation information

Connect the data cable of your second monitor to the DVI output connector (2) on the card.



Connecting analog VGA Monitors

If the data cable connector on your VGA monitor does not fit into the DVI connector on the card, please use the DVI-to-VGA adapter provided with your FIRE GL™ card..



- | | | | |
|---|-----------------------|---|----------------------------|
| a | Monitor cable | c | VGA connector from monitor |
| b | DVI connector on card | d | DVI-to-VGA adapter |

Setting the Monitor Impedance

If you can switch the impedance values on your monitor, use the following recommended settings:

- RGB video input: 75 Ohm
- Sync: 2.2 kOhm

Try other 'Sync' settings if you cannot achieve a stable video image.

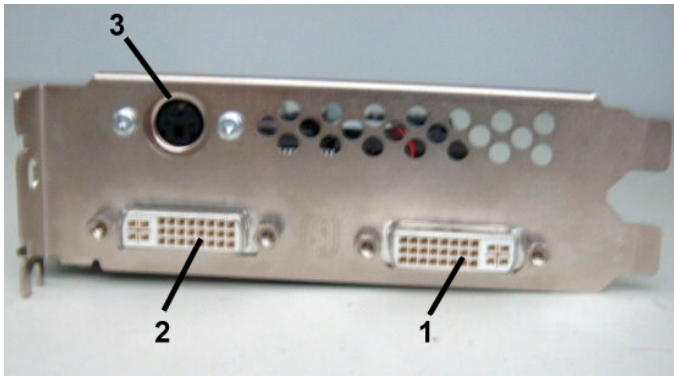
If the impedance setting options are 'High' and 'Low' only, try the setting that provides the most satisfactory monitor display.

Connecting the Stereo Glasses

You need this information only if you want to use LCD shutter glasses or other stereo shutter devices.

Please note that stereo glasses and stereo shutter devices are optional equipment and not included in the FIRE GL™ card package.

Connect your stereo glasses or stereo shutter device to the 3 pin Mini-DIN stereo sync connector (3) on the card. Connect only stereo glasses or stereo shutter devices with shielded cable and ferrite cylinder to the FIRE GL™ card.



Note

If the connector on your stereo glasses or stereo shutter device does not fit into the Mini-DIN connector on the card, please contact your supplier or the manufacturer of the stereo device for information on how to obtain an adapter cable.

Start your System

Switch on your monitor before you switch on your computer. Failing to do so could damage your monitor.

If you have correctly installed the card, operating system messages will appear on your monitor when the boot procedure is finished.

Note

Your monitor is running in standard VGA mode. Higher refresh rates etc. are not available at this stage of the installation. After you have successfully installed the FIRE GL™ drivers you can use the dialogs in the **Display Properties** menu to adjust the video settings and set up a multi-monitor configuration.

Your System Does Not Start as it Should?

- Check again to verify that the installation instructions were properly followed.
- Check that the card is properly installed in your system and connected to your monitor.
- Refer to the documentation that came with your monitor: Check your connections to the video and power cables. Try adjusting the brightness, sharpness, and contrast controls of your monitor.
- If you have problems during start-up, restart your computer in **SAFE MODE**.
In Windows® 2000 and Windows® XP, press and hold **F8** until you see the Windows® Advanced Options Menu. Use the arrow keys to select **Safe Mode**, and press **Enter**.
- Check the system configuration utility of your operating system for the interrupt assignments.
- Please refer to the [Troubleshooting](#) section for more information, if it appears that the card is not performing optimally.
- Contact the Technical Support.

Installing the Software

- **Before you Start: Information, Tips, and Hints**
- **Software Installation for Windows 2000 and Windows XP**

You will need to install the FIRE GL™ drivers and software in the following cases:

- After you have installed the card to your system.
- After you have re-installed or upgraded your operating system.

Notes

(1) To install or remove the FIRE GL™ drivers, you need administrator rights or you must be logged on as a user with administrator rights under Windows 2000 and Windows XP.

(2) Information for Windows 2000:
You must have Microsoft Windows Service Pack 1 (or higher) installed prior to installing the FIRE GL™ drivers.

The Service Pack is available from Microsoft's web page, www.microsoft.com.

(3) Linux drivers and installation instructions are available for downloading from www.ati.com/support.

Before you Start: Information, Tips, and Hints

Before you install the drivers for your FIRE GL™ card, make sure your monitor cable is properly attached to the card.

Do you need a special driver installation?

The software installation procedure later in this chapter describes how to install the drivers for your graphics card after you have installed the new card for the first time and have rebooted your computer.

This section offers some additional tips if you want or need to install the graphics card drivers in a special working scenario, for example, if you have re-installed your operating system, or if you want to perform a manual installation.

- You can always install the drivers using the Quick Start utility on the FIRE GL™ CD.
The **Quick Start** utility will start automatically, if you insert the FIRE GL™ CD into your CD-ROM drive after the operating system has started. If your CD-ROM auto-run is not enabled and/or the **Quick Start** utility does not start automatically:
Start > Run
Type **X:\START.EXE**
where **X** is the drive letter of your CD-ROM drive
Click **OK**.
- Select **Readme** from the **FIRE GL™ CD** start menu to display a readme file. Refer to this file for additional and ‘last minute’ information. Information in this file may not appear in printed documentation or online help.
- Where are the drivers? When prompted for a driver installation CD, insert the FIRE GL™ CD and enter or browse to **\drivers**
- You must be running Windows XP or Windows 2000 - updated with Service Pack 1 (or newer), before installing the FIRE GL™ drivers.

HYDRAVISION™ Multi-monitor Management

The HYDRAVISION™ multi-monitor and desktop management software will install automatically with the **Standard** driver installation of the **Quick Start** program. If you do not want to install HYDRAVISION™ select the **Custom** driver installation and deselect **HYDRAVISION™**.

ReadMe file

Select **Readme** from the **FIRE GL™ CD** start menu to display a readme file. Refer to this file for additional and ‘last minute’ information. Information in this file may not appear in printed documentation or online help.

Driver installation dialog

The installation dialog will display in English if your operating system’s language is not supported.

Software Installation for Windows 2000 and Windows XP

- 1** Start your system. When the **Found New Hardware Wizard** comes up, click **Cancel**. When the **System Settings Change** window asks you to restart your computer, click **No**.
- 2** Run the **Quick Start** utility. The Quick Start utility will start automatically, if you insert the FIRE GL™ CD into your CD-ROM drive after the operating system has started. If your CD-ROM auto-run is not enabled and/or the Quick Start program does not start automatically:
Click the **Start** button in the task bar, click **Run**, and then select **START.EXE** from the root directory of the Fire GL CD.
- 3** Click **Start Installation**.

Note

Windows 2000: If your Windows 2000 is not correctly updated with Service Pack 1, the driver installation stops. Obtain Windows 2000 Service Pack 1 from Microsoft, update your Windows 2000, and run the Quick Start utility again.

Click the button corresponding to the type of installation you want.

The **Standard** installation option is recommended. The HYDRAVISION™ multi-monitor and desktop management software will automatically be installed, along with the ATI driver, by selecting this option.

If you select **Custom**, a list of software components will be displayed. Select the check boxes to specify the components you want to install.

- 4** Click **Next** to continue the installation.
- 5** When the **ATI FGL Install** dialog displays the components to be installed click on **Next**. (Depending on which components you chose different windows might appear. Click on the corresponding buttons to continue the installation.)
- 6** When the **Installation complete** message appears click **Next** again. This will restart your computer.
- 7** After Windows 2000/Windows XP reboots, the **Found New Hardware** message displays the **Digital Signature Not Found** dialog and prompts you **Do you want to continue the installation?** Click **Yes** to install and start the drivers.
- 8** Click **Start > Settings > Control Panel > Display > Settings**, or right-click on the Windows desktop, select **Properties** and **Settings**.
- 9** Set the resolution (**Screen area**), and color depth that best suit your requirements and your monitor's performance.
- 10** Click the **Advanced** button and select the **Monitor** tab.
- 11** Set the refresh rate for the monitor connected to the FIRE GL™ card in your system.
- 12** Click **OK** until you are on the Windows desktop

Note

Refer to your Windows online help and documentation for further information on using the Monitor and Settings dialogs.

CHAPTER 3

Using Your FIRE GL™ Card



IN THIS CHAPTER...

- [Using Two Monitors](#) on page 26
- [Changing the Video Settings](#) on page 28
- [Using Application Profiles](#) on page 33
- **SEE ALSO**
[HYDRAVISION™ User's Guide](#)

As part of its Windows drivers, FIRE GL™ installs additional dialog boxes to your **Display Properties** control panel. They are named as follows.

Information Adjustment DualScreen Configuration

The **Information** dialog displays card-specific hardware and driver information. This information may be helpful when contacting Tech Support. Click **Display Properties > Settings > Advanced > Information**.

Use the [Adjustment](#) dialog to adjust the display of the connected monitor(s)

Use the [DualScreen](#) dialog if you want the display of the primary monitor duplicated on the second monitor.

Use the [Configuration](#) dialog to customize application profiles for individual application settings.

Using Two Monitors

You can set resolutions, refresh rates, and display adjustment independently for any two connected displays.

Note

For two-monitor configuration settings you need the following:

- Two monitors connected to the card
- Both monitors switched on when you start your computer

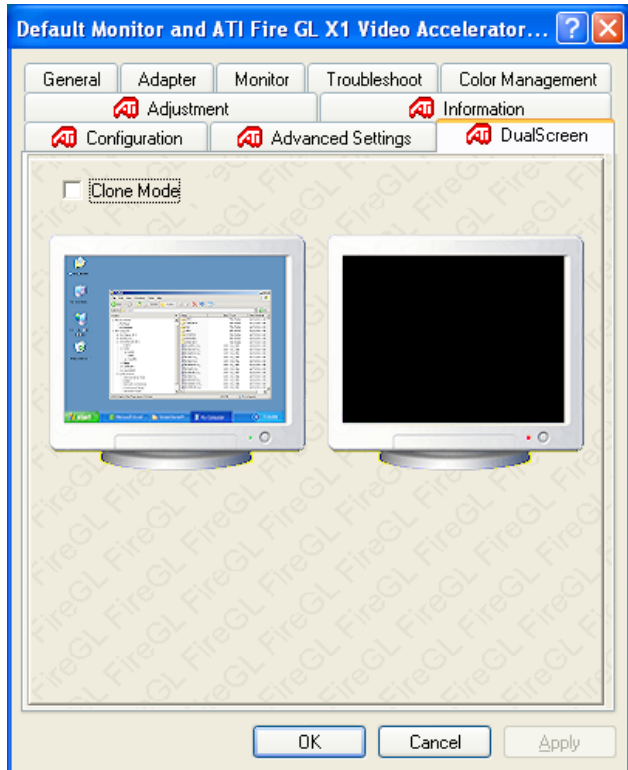
- Use the **Display Properties > Settings** dialog for the basic two-monitor configuration settings. Refer to your Windows online help and documentation for further information on using the **Display Properties > Settings** dialog.
- **Switching to a two-monitor display:**
In the **Display Properties > Settings** dialog click the monitor icon **2**.
Select **Extend my Windows desktop onto this monitor**. Set **Screen resolution** and **Color quality** for the second monitor.
Click the **Apply** or **OK** button to enable your settings.
- **HYDRAVISION™** multi-monitor and desktop management software enables you to tailor your two-monitor desktop to the way you work. For more information on HYDRAVISION™, please refer to the **HYDRAVISION™ User's Guide** located on your FIRE GL™ CD.
- If you want the display of the primary monitor duplicated on the second monitor, select **Clone Mode** in the *DualScreen* dialog.

Note

Options and settings in the **Monitor** and **Adjustment** dialogs apply only to the monitor selected in the **Display Properties > Settings** dialog. Click the corresponding monitor icon before you click **Advanced**.

Using the DualScreen Dialog

Use the **DualScreen** dialog if you want the display of the primary monitor duplicated on the second monitor.



- 1 Select the **DualScreen** dialog via **Display Properties > Settings > Advanced > DualScreen**. Refer to the context sensitive online help for more information on setting up your DualScreen configuration.
- 2 Select **Clone Mode** if you want the display of the primary monitor duplicated on the second monitor.
- 3 Click the **Apply** or **OK** button to enable your **DualScreen** setting.

Changing the Video Settings

The dialogs in the **Display Properties** menu allow setting and adjusting the video settings to best suit your specific requirements

- **Setting Resolution, Color Depth and Refresh Rate**
- **Adjusting the Monitor Display**

How to Switch to the Display Properties?

- 1 Start Windows.
- 2 Windows 2000: Click **Start > Settings > Control Panel**.
Windows XP: Click **Start > Control Panel > Appearance and Themes**.
- 3 Double-click the **Display** icon. The **Display Properties** window appears.

Notes

- 1 You can also display the **Display Properties** window by right-clicking the Windows Desktop background and then selecting the **Properties** option from the pop-up menu.
- 2 Click the **Advanced** button in the **Settings** dialog to gain access to the **Monitor**, **Information**, **Configuration**, **Adjustment**, and **DualScreen** dialogs.

Setting Resolution, Color Depth and Refresh Rate

- 1 Select the **Settings** dialog in the **Display Properties** window.
- 2 **Color depth**: Select a value from the **Colors** box.
- 3 **Resolution**: In the **Screen area** drag the slider.
- 4 **Refresh Rate**: Select the **Monitor** dialog via **Display Properties > Settings > Advanced > Monitor**.
Select a refresh rate from the **Refresh Frequency** box.
- 5 Click **Apply**
- 6 To preview the new settings, click **OK**.

- 7 To accept the settings, click **Yes**; otherwise, click **No**.
- 8 If the display becomes garbled or unusable, simply wait and Windows will restore the original settings

Notes

- 1 Check the documentation of your monitor(s) and make sure that each monitor supports the planned resolution and refresh rate and color depth settings.

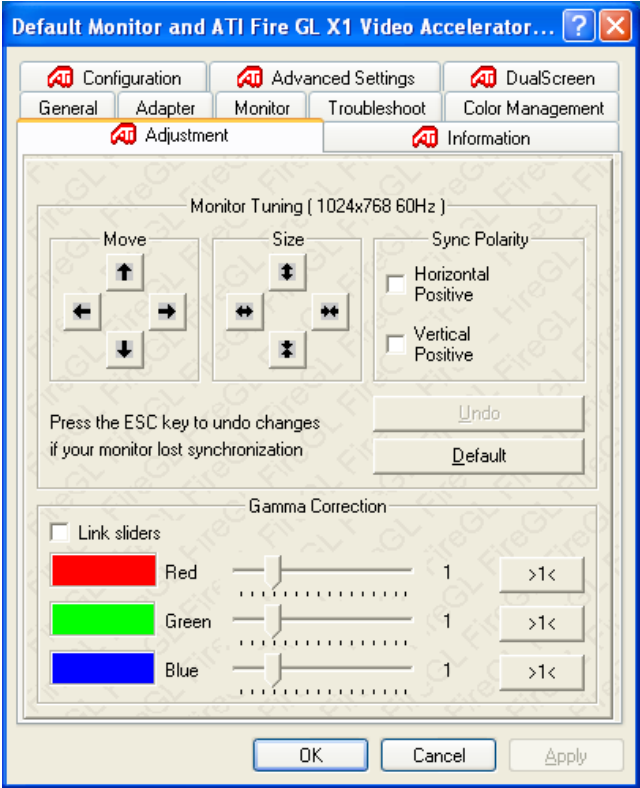


Warning! Selecting a resolution or refresh rate that your monitor does not support can permanently damage the monitor.

- 2 Use the **Monitor** dialog (**Display Properties\ Settings\ Advanced\ Monitor**) to select and set your specific monitor(s).
- 3 Use the *DualScreen* dialog (**Display Properties\ Settings\ Advanced\ DualScreen**) dialog if you want the display of the primary monitor duplicated on the second monitor.
- 4 Use the *Adjustment* dialog (**Display Properties\ Settings\ Advanced\ Adjustment**) to adapt the display of the monitors connected to the FIRE GL™ card..

Adjusting the Monitor Display

Using this dialog you can adjust the display of the connected monitor. For more information on adjusting the monitor's display refer to the context sensitive online help.



- 1 Select the **Adjustment** dialog via **Display Properties > Settings > Advanced > Adjustment**.

2 Monitor Tuning - available only for VGA monitors

- With the buttons in the **Move** and **Size** sections you can tune the position and size of the monitor's display for the indicated resolution and refresh rate

Notes

- 1 Use the hardware setting controls on your monitor, if available, to adjust your display size or position - instead of the software controls in 'Adjustment - Monitor Tuning.' Check the documentation of your monitor for information on your monitor's hardware controls
- 2 Resizing the display slightly changes the actual refresh rate. If you operate a fixed-frequency monitor check the documentation of your monitor for information on refresh rate tolerances.

- **Sync Polarity:** If you do not get a satisfactory display with the default sync polarity setting for the current resolution, you may try and change the settings.
- **Undo:** Click this button to undo the last change you made (when you clicked **Apply**). If you have made a modification that causes your screen to go blank or to be unreadable, the keyboard shortcut for 'Undo' is **Alt-U**.
- **Default:** Click this button to set the **Monitor Tuning** to the manufacturer's default settings.

Notes

- 1 Press the **ESC** key on your keyboard to undo the changes if your monitor has lost synchronization. You may also use the keyboard shortcut for 'Undo'- **Alt-U**.
- 2 If you change the resolution (in **Settings**) and/or the refresh rate (in **Monitor**), you may need to re-adjust the monitor's display.

- 3 Gamma Correction Adjustment:** Adjust the monitor's gamma correction for optimal brightness with the red, green and blue slider bars.

When these sliders are changed the gamma correction table modifies each pixel's color value.

The brightness produced at the face of the display is proportional to the input voltage raised to the power gamma. This nonlinearity must be compensated to achieve correct reproduction of the image's brightness. The effect of display gamma is to darken the midtones relative to the dark and light regions. The gamma correction adjustment affects the entire screen display. The possible setting range is 0.3 - 4.0. The default setting is 1.0.

With **Link sliders** selected, the three sliders move together as you drag any individual slider. With the check box unchecked, you can adjust colors individually by dragging the applicable slider.

Click the **>1<** button - for each color - to set the gamma correction to the default value of 1.0.

- 4** Click the **Apply** or **OK** button to enable your **Adjustment** settings.

Using Application Profiles

Use the **Configuration** dialog to customize application profiles for individual application settings.

How to switch to the Configuration dialog?

Select **Display Properties > Settings > Advanced > Configuration**.

Notes

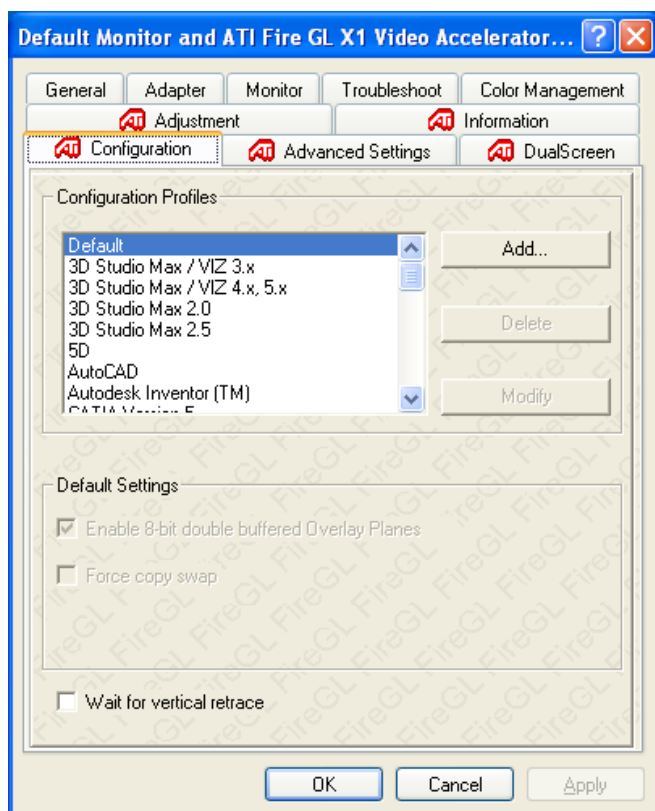
- 1** The configuration default settings typically require modification only for the following:
 - diagnostic purposes
 - fine-tuning a specific application/system configuration-specific settings recommended by your hardware or software documentation
 - tuning your application/system environment for best performance and memory usage
- 2** Only experienced users should modify the configuration settings

Configuring Application Profiles

Activating a configuration profile

For some of the most popular applications the optimal configuration profile is factory-set by default. Select the application from the list in the **Configuration Profiles** section. This will add necessary Windows registry settings. Click **Apply** and, if prompted, restart Windows.

If you experience problems with your application, or if you want to try to optimize the performance of your system on specific applications, you may modify the configuration settings.



Adding a new application profile

Click the **Add** button in the **Configuration Profiles** section and enter the new application for which you want to set the configuration parameters.

Modifying the configuration parameters

To change the configuration settings of a specific application, for example, CATIA, select the application from the list in the **Configuration Profiles** section and click the **Modify** button. To remove the selected configuration profile completely, click **Delete**.

Note: You cannot delete the factory-set configuration profiles.

If you add or modify a configuration profile, select or clear the checkboxes in the **Settings** section according to your requirements.

Default Settings

Enable 8-Bit double-buffered Overlay Planes

Use 8 bits of each 32-bit frame buffer pixel as double-buffered overlay planes.

Force copy swap

Force blit copy during double-buffer swap from back to front buffer.

Wait for vertical retrace

Buffer swap 'synched' to the refresh rate of the monitor.

Enabling will lower the frame rate but reduce visual artifacts such as tearing. Disabling allows your application to run at the highest possible frame rate, regardless of the monitor's refresh rate, which is typically less than the frame rate at which the application will run.

Click the **Apply** or **OK** button to enable your **Configuration** settings.

CHAPTER 4

Reference



IN THIS CHAPTER...

- **Removing the FIRE GL™ Drivers** on page 36
- **Troubleshooting** on page 38
- **Technical Details** on page 41
- **Compliance Information** on page 47

Removing the FIRE GL™ Drivers

This section describes how to properly remove your graphics card software from your system should you need to do so.

Notes

- 1 Before removing the FIRE GL™ video driver, please close all open application programs and disable any anti-virus software that is running on your computer until the driver is removed.
- 2 To install or uninstall the FIRE GL™ drivers, you need administrator rights or you must be logged on as a user with administrator rights under Windows.

- 1 From the Start menu, click **Start > Programs > ATI FGL**.
- 2 Click **ATI FGL Install/Uninstall**. The **ATI FGL Install** dialog appears.

3 Click **Add/Remove component**.

Select **ATI FIRE GL™ Video Accelerator** and uncheck the checkbox.

Note: Make sure that only those components are unchecked that you want to remove now. (Click **Back** and **Add/Remove component** to select specific software components for removal.)

4 Click **Next** to remove the FIRE GL™ driver.

5 Follow further instructions displayed on your screen.

After you have removed the software according to the instructions, you may remove the hardware.

1 Shut down your computer.

2 Remove the computer case as outlined in the hardware installation instructions.


3 Ground yourself by touching the power supply box.

4 To remove the hardware, simply reverse the hardware installation procedures.

Troubleshooting

Your board is a complex electronic device and can only be repaired by authorized technical personnel with special equipment. Do not attempt to change or repair any parts of this product. Doing so will render your warranty invalid.

If you experience a problem using the FIRE GL™ card, check the following sections for advice on how to solve your problem.

Technical Support and FAQs	<p>You may find information on Technical Support, as well as Frequently Asked Questions and their answers at the web sites of ATI Inc. Go to www.ati.com and select Customer Service.</p>
No image appears on monitor when computer system is turned on	<ul style="list-style-type: none">• Make sure that the FIRE GL™ card is firmly seated and lined up properly in its AGP Pro slot, and that the monitor cable is firmly and correctly connected to the card. For more information, please refer to <i>Installing the Hardware</i> on page 8.• Make sure that your computer and monitor are plugged into electrical outlets and receiving power.• Is the monitor turned on and receiving power?.
<div>Screen image defects appear</div> <div></div>	<ul style="list-style-type: none">• Check if your monitor supports the resolution, horizontal (kHz) and vertical (Hz) refresh rates as required by the graphics card.• Check for your current resolution, refresh rate, and color depth settings in the Settings and Monitor dialogs of the Display Properties. <p>Warning! Be sure that both video card and monitor support resolution and refresh rates you select. Incompatible resolution/refresh rate selection may result in monitor damage. Refer to your monitor's documentation for recommended resolutions and refresh rates.</p>

Screen image is off-center, color balance is wrong, or there is no picture

- Try adjusting the brightness, sharpness, contrast, and color balance controls of your monitor.
- Try adjusting the centering and positioning controls of your monitor to position the picture on the screen.
Note: The **Monitor Tuning** settings in **Display Properties > Adjustment** tune the position of the picture on the screen via the video signal.
- Set the monitor's RGB inputs (and sync switches, if this option is available) to 75 Ohms, with the sync set to external.
- Using DFP monitors: Make sure that the DVI plug of your monitor data cable is digital-only (DVI-D) - but not integrated analog/digital (DVI-I). Refer to your monitor's documentation and contact your supplier or the manufacturer of the DFP monitor for information on how to obtain a suitable data cable plug.

Operating system warns that the video card is not configured properly

- Check the driver installation and make sure that all software is correctly loaded corresponding to your operating system and applications. For more information, please see [Installing the Software](#).
- Re-install the FIRE GL™ drivers. Please refer to [Installing the Software](#) on page 21.

How to enable a two-monitor desktop?

- 1 You need two monitors connected to the card. Both monitors must be switched on when you start your computer.
- 2 Check the **Monitor** dialog of the **Display Properties**.

Checking for address and interrupt conflicts

- It is necessary to ensure that the I/O and memory addresses reserved for the graphics board are not used by other hardware devices.
- The integrated on-board VGA controller of your FIRE GL™ card uses the following addresses (hex):
I/O Address:
Standard VGA I/O: 3B0-3DF
Memory Addresses:
Video RAM: A000-BFFF
Video ROM: C000-C7FF
Note: You cannot change the addresses of your FIRE GL™ card. In case of an address conflict, try to modify the I/O address of the add-on card that causes the conflict.

Resolving Interrupt Conflicts

To support the special graphics processor on the FIRE GL™ card the system BIOS should automatically assign a system interrupt to the AGP slot where the card is installed. However, there may be problems if your graphics card does not receive an interrupt or a system interrupt is used for more than one device. In case of problems check the system configuration utility of your operating system for the interrupt assignments.

Technical Details

- [Features and Performance](#) on page 41
- [Pin Assignments](#) on page 43
- [Video Modes](#) on page 45

Features and Performance

General

Operating environment	Windows® 2000, Windows® XP, Linux
System requirements	Intel® Pentium® 3, Pentium® 4, Xeon®; AMD® Athlon® XP/MP or compatible
Certifications	FCC/DOC, ICES-003, CE/DOC, SMA C-Tick, MIC, BSMI, VCCI
Dimensions	Length: 228.6 mm (9.0 inches) Width: 108.0 mm (4.25 inches)
Power requirements	+ 3.3 Volts DC: 7.7 Amps + 5 Volts DC: 0.3 Amps + 12 Volts DC: 2.0 Amps maximum

Functional

System	Windows® 2000, Windows® XP
Bus System	AGP Pro 8x or AGP Pro 4x
Graphic controller	FGL 9700 Visual Processing Unit (VPU)
Video memory	FIRE GL™ X1: 256 MB DDR SDRAM FIRE GL™ Z1: 128 MB DDR SDRAM
BIOS	64 Kbyte BIOS FlashROM, re-programmable by software, 3.3 V
Digital/analog converter	2x 30-bit Palette DAC DAC speed: 400 MHz
Data width	256 bit - graphics core 256 bit - memory interface
Connectors	2x DVI-I output connectors: analog and digital output, female 1x Stereo output connector: 3-pin MiniDin, female
H/V Sync output signals	Separate horizontal and vertical sync at TTL levels
FIRE GL™ card addresses	The FIRE GL™ card is 100% IBM VGA compatible and occupies the same memory area and specific addresses in the I/O range. The memory range above 1 MB is automatically assigned through the PCI BIOS interface I/O addresses: 3B0 - 3DF (Standard VGA I/O) Video RAM: A000-BFFF Video ROM: C000-C7FF

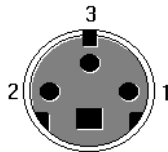
3D Performance

Test system: Intel P4 2.53 GHz, single processor, 512 MB DDR

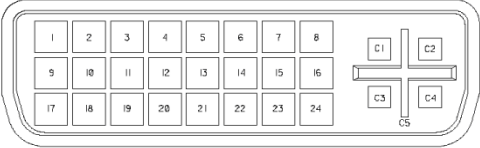
- 28.3 Million antialiased 3D 10-pixel vectors per second
- 48.9 Million 3D 10-pixel vectors per second, non-antialiased
- 150.0 Million 1-pixel triangles per second
- 19.3 Million 25-pixel triangles per second, Gouraud-shaded, Z-buffered, non-textured
- 16.9 Million 25-pixel triangles per second, Trilinear Texture, Mip-mapped
- 2.4 Giga Pixels/second fill rate, Gouraud shaded, Z-buffered, non-textured
- 2.4 Giga Pixels/second fill rate, Trilinear Texture, Mip mapped

Pin Assignments

Stereo Sync Output Connector



Pin	Function
1	+ 5 V DC (fused 750 mA)
2	ground
3	StereoSync

DVI Output Connector	Pin	Function
	1	T.M.D.S. Data2-
	2	T.M.D.S. Data2+
	3	T.M.D.S. Data2/4 Shield
	4	T.M.D.S. Data4-
	5	T.M.D.S. Data4+
	6	DDC Clock
	7	DDC Data
	8	Analog Vertical Sync
	9	T.M.D.S. Data1-
	10	T.M.D.S. Data1+
	11	T.M.D.S. Data1/3 Shield
	12	T.M.D.S. Data3-
	13	T.M.D.S. Data3+
	14	+ 5V Power
	15	ground (for + 5V)
	16	Hot Plug Detect
	17	T.M.D.S. Data0-
	18	T.M.D.S. Data0+
	19	T.M.D.S. Data0/5 Shield
	20	T.M.D.S. Data5-
	21	T.M.D.S. Data5+
	22	T.M.D.S. Clock Shield
	23	T.M.D.S. Clock+
	24	T.M.D.S. Clock-
<p>DVI: Digital Visual Interface</p> <p>DDC: Display Data Channel</p> <p>T.M.D.S: Transition Minimized Differential Signal</p> <p>MicroCross Pins:</p> <p>C1 Analog Red Video Out</p> <p>C2 Analog Green Video Out</p> <p>C3 Analog Blue Video Out</p> <p>C4 Analog Horizontal Sync</p> <p>C5 Analog Common Ground Return (Red, Green, Blue Video Out)</p>		

Video Modes

All video modes comply with VESA DMT (Discrete Monitor Timing) or VESA GTF (General Timing Format) standards. The FIRE GL™ card supports HiColor, 16-bit modes and TrueColor, 32-bit (24 color, 8 alpha) modes. There is no support for 8-bit modes.

Analog and digital monitors with 15-pin VGA connector

Resolution	Line Rate (kHz)	Refresh Rate (Hz)	Color Depth (Bits)
640 x 480	31.5, 37.5, 43.3, 50.9	60, 75, 85, 100	16 / 32
800 x 600	37.7, 46.9, 54.1, 63.9	60, 75, 85, 100	16 / 32
1024 x 768	48.4, 60.0, 68.7, 81.4	60, 75, 85, 100	16 / 32
1152 x 864	53.7, 67.5, 77.1, 91.5	60, 75, 85, 100	16 / 32
1280 x 1024	64.0, 78.0, 91.1, 107.0	60, 75, 85, 100	16 / 32
1600 x 1000*	62.1, 78.3, 89.3, 105.9	60, 75, 85, 100	16 / 32
1600 x 1024	63.6, 80.2, 81.3, 91.4	60, 75, 76, 85	16 / 32
1600 x 1200	75.0, 93.8, 106.3	60, 75, 85	16 / 32
1792 x 1344	83.6, 106.3	60, 75	16 / 32
1920x1080**	67.1, 84.6	60, 75	16 / 32
1920 x 1200*	74.5, 94.0	60, 75	16 / 32
2048 x 1536	95.3	60	16 / 32

*: Wide Screen Aspect Ratio Mode (16:10)

**: Wide Screen Aspect Ratio Mode (16:9)

Digital Monitors with DVI connector		
Resolution	Refresh Rate (Hz)	Color Depth (Bits)
640 x 480	60, 75	16 / 32
800 x 600	60, 75	16 / 32
1024 x 768	60, 75	16 / 32
1152 x 864	60, 75	16 / 32
1280 x 1024	60, 75	16 / 32
1600 x 1000	60	16 / 32
1600 x 1024	60	16 / 32
1600 x 1200	60	16 / 32

Compliance Information

FCC Compliance Information

FCC - DECLARATION OF CONFORMITY FOR A CLASS B DIGITAL DEVICE

We, the Responsible Party

ATI Research Inc.- FIRE GL WORKSTATIONS
4 Mount Royal Avenue, Marlborough, MA
01752-1978 USA; Phone: (508) 303-3900

declare that the products

FIRE GL™ X1

FIRE GL™ Z1

comply with Part 15 of the FCC Rules. The compliance with those standards is confirmed in an accreditation certificate.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
- The use of shielded cables for connection of the monitor to the graphics card is required to ensure compliance with FCC regulations.
 - Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment

Industry Canada Compliance Statement

ICES-003

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE Compliance Information

EMC Directive 89/336/EEC and amendments 91/263/EEC, 92/31/EEC and 93/68/EEC, Class B Digital Device

EN 55022:1998/CISPR 22 Class B, Limits and Methods of Measurement of Radio Interference Characteristics Information Technology Equipment.

EN 55024:1998, Immunity of Information Technology Equipment (ITE), including

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,

EN 61000-4-6, EN 61000-4-11

EN 60950:92 + A1:93 + A2:93 + A3:95 + A4:97

Directive EMC 89/336/CEE et amendements 91/263/CEE, 92/31/CEE et 93/68/CEE, dispositif numérique de Classe B

EN 55022:1998/CISPR 22 Classe B, Limites et méthodes de mesure des caractéristiques d'interférences radiophoniques, Matériel des technologies de l'information.

EN 55024:1998, Norme sur l'immunité de matériel des technologies de l'information, et comprenant

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,

EN 61000-4-6, EN 61000-4-11

EN 60950:92 + A1:93 + A2:93 + A3:95 + A4:97

EMC Richtlinie 89/336/EEC und Änderungen 91/263/EEC, 92/31/EEC und 93/68/EEC, Digitales Gerät der Klasse B

EN 55022:1998/CISPR 22 Klasse B, Beschränkungen und Verfahren der Messung von informationstechnischen Ausrüstungen mit Funkstörmerkmalen

EN 55024:1998, Unempfindlichkeits-Standard für informationstechnische Ausrüstungen, einschliesslich

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,

EN 61000-4-6, EN 61000-4-11

EN 60950:92 + A1:93 + A2:93 + A3:95 + A4:97

VCCI Class B ITE Compliance Information

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取扱説明書に従って正しい取り扱いをして下さい。